Amendments to the Claims:

1. (currently amended) A method of distributed decentralized synchronization between a plurality of nodes connected to a media, each node including a clock, said method comprising the steps of:

listening to the media for a predetermined length of time while attempting to detect synchronization signals from other nodes;

if synchronization signals are detected, deriving a timing signal from said synchronization signals;

aligning the clock in a particular node in accordance with said timing signal;

randomly transmitting, on a frame by frame basis, synchronization signals onto said media within a synchronization time slot;

maintaining synchronization with other nodes by listening to said media for synchronization signals transmitted by other nodes when said synchronization signal is not transmitted during said specific points in time and detecting synchronization signals transmitted by other nodes; [[and]]

if synchronization signals are not detected, randomly transmitting, on a frame by frame basis, synchronization ~~pulses~~ signals onto said media within said synchronization time slot and waiting for other nodes to join said network[[.]] ; and

maintaining said media in an occupied state once synchronization is achieved by periodically transmitting a frame occupation signal within a media busy time slot indicating to all other nodes that the next frame is occupied.

2. (original) The method according to claim 1, wherein said step of listening is performed at least upon wake-up of a node.

3. (original) The method according to claim 1, wherein said synchronization signal comprises a sequence of single tone pulses, each pulse having a different frequency.

4. (original) The method according to claim 1, wherein said synchronization signal comprises a wide band bi-phase sequence.

5. (original) The method according to claim 4, wherein the each node is adapted to transmit a different bi-phase sequence.

6. (original) The method according to claim 4, wherein said wide band bi-phase sequence is adapted to have good autocorrelation properties.

7. (original) The method according to claim 1, wherein said step of aligning comprises providing a phase lock loop adapted to receive said timing signal and operative to maintain said clock in synchronization with said timing signal.

8. (previously amended) The method according to claim 1, wherein said step of transmitting comprises the step of selecting a number at random and transmitting said synchronization signal if the number selected is less than a predetermined threshold number chosen, wherein said predetermined threshold number corresponds to a desired duty cycle.

9. (original) The method according to claim 8, wherein said duty cycle is approximately 50%.

10. (original) The method according to claim 1, wherein said synchronization signals, when they are to be transmitted, are transmitted onto said media at the same cyclical point in time.

11. (original) The method according to claim 1, wherein said synchronization signals, when they are to be transmitted, are transmitted onto said media at the same cyclical point in time before the body of a frame is transmitted.

12. (withdrawn) A method of media capture by a node connected to a media and adapted to run a protocol, said method comprising the steps of:

determining whether said media is available;

if said media is not available, waiting until said media is available before starting a new transmission;

once said media is available, establishing a connection between a source node and a destination node in accordance with said protocol;

transmitting a frame occupation signal from both said source node and said destination node; and

if said connection was successfully established, maintaining said connection by periodic transmission of said frame occupation signal by said source node and said destination node.

13. (withdrawn) The method according to claim 12, wherein said step of determining whether said media is available comprises listening for the presence of said frame occupation signal.

14. (withdrawn) The method according to claim 12, wherein said media is determined to be available when no frame occupation signals are detected on said media.

15. (withdrawn) The method according to claim 12, wherein said frame occupation signal is periodically transmitted onto said media at the same point in time.

16. (currently amended) A media access controller for controlling access by a node to a media connected thereto, comprising:

a synchronization signal generator adapted to randomly transmit, on a frame by frame basis, a synchronization signal onto said media within a synchronization time slot;

a synchronization mechanism adapted to achieve synchronization between a particular node and other nodes, said synchronization mechanism operative to control the generation of said synchronization signal by said synchronization signal generator;

a timing mechanism operative to produce a timing signal derived from a plurality of received synchronization signals;

a frame occupation signal generator adapted to periodically transmit ~~generate~~ a frame occupation signal within a media busy time slot ~~when~~ once said node obtains access to said media for indicating that the next frame is occupied; and

a media access controller for coordinating access to said media, wherein access to said media is not permitted as long as the presence of a frame occupation signal is detected on said media.

17. (original) The controller according to claim 16, further comprising a transmit/receive interface adapted to interface said media access controller to transmit circuitry and receive circuitry.

18. (previously amended) The controller according to claim 16, further comprising a transmit/receive controller adapted to manage the transmission and reception of data between an application processor and transmit circuitry and receive circuitry.

19. (original) The controller according to claim 16, wherein said timing mechanism is adapted to average the timing of a plurality of individual synchronization signals transmitted by other nodes.

20. (original) The controller according to claim 19, wherein said averaging is achieved by time averaging the output of a matched filter adapted to said synchronization signal.

21. (currently amended) The controller according to claim 16, wherein said synchronization mechanism comprises processing means operative to:

listen to the media for a predetermined length of time while attempting to detect synchronization signals from other nodes;

if synchronization signals are detected, derive a timing signal from said synchronization signals;

align the clock in a particular node in accordance with said timing signal;

randomly transmit, on a frame by frame basis, synchronization signals onto said media within a synchronization time slot;

maintain synchronization with other nodes by listening to said media for synchronization signals transmitted by other nodes when said synchronization signal is not transmitted within said synchronization time slot; [[and]]

if synchronization signals are not detected, randomly transmit, on a frame by frame basis, synchronization ~~pulses~~ signals onto said media within said synchronization time slot and wait for other nodes to join said network[[.]] ; and

maintaining said media in an occupied state once synchronization is achieved by periodically transmitting a frame occupation signal within a media busy time slot indicating to all other nodes that the next frame is occupied.

22. (original) The controller according to claim 16, wherein said frame occupation signal generator is adapted to periodically transmit said frame occupation signal onto said media at the same point in time.

23. (previously amended) A method of converging disparate synchronizations from a plurality of networks, said method comprising the steps of:

listening for synchronization signals transmitted from each network;

if more than one synchronization signal is detected, transmitting a synchronization signal shifted in time for each group of synchronization signals detected;

nodes in each network capable of detecting said shifted synchronization signals adjusting their synchronization timing in response to said shifted synchronization signals; and

repeating said steps of transmitting and adjusting until unified synchronization is achieved among said plurality of networks.

24. (original) The method according to claim 23, wherein said step of listening is performed at least upon wake-up of a node.

25. (original) The method according to claim 23, wherein said synchronization signal comprises a sequence of single tone pulses, each pulse having a different frequency.

26. (original) The method according to claim 23, wherein said synchronization signal comprises a wide band bi-phase sequence.

27. (original) The method according to claim 26, wherein the each node is adapted to transmit a different bi-phase sequence.

28. (original) The method according to claim 26, wherein said wide band bi-phase sequence is adapted to have good autocorrelation properties.

29. (original) The method according to claim 23, wherein said step of adjusting comprises providing a phase lock loop adapted to maintain synchronization of a clock with synchronization signals received from other nodes.

30. (previously amended) The method according to claim 23, wherein said step of transmitting comprises the step of selecting a number at random and transmitting said synchronization signal if the number selected is less than a predetermined threshold number chosen, wherein said predetermined threshold number corresponds to a desired duty cycle.

31. (original) The method according to claim 30, wherein said duty cycle is approximately 50%.

32. (original) The method according to claim 23, wherein said synchronization signals, when they are to be transmitted, are transmitted onto said media at the same cyclical point in time.

33. (original) The method according to claim 23, wherein said synchronization signals, when they are to be transmitted, are transmitted onto said media at the same cyclical point in time before the body of a frame is transmitted.

34. (currently amended) A node connected to a media, comprising:

a media coupling circuit adapted to electrically interface said node to said media;

an application processor for executing an application program;

a media access controller comprising:

a synchronization signal generator adapted to randomly transmit, on a frame by frame basis, a synchronization signal onto said media within a synchronization time slot;

a synchronization mechanism adapted to achieve synchronization between a particular node and other nodes, said synchronization mechanism operative to control the generation of said synchronization signal by said synchronization signal generator;

a timing mechanism operative to produce a timing signal derived from a plurality of received synchronization signals;

frame occupation signal generator adapted to periodically transmit ~~generate~~ a frame occupation signal within a media busy time slot ~~when~~ once said node obtains access to said media for indicating that the next frame is occupied; and

a media access controller for coordinating access to said media, wherein access to said media is not permitted as long as the presence of a frame occupation signal is detected on said media;

a transmit circuit adapted to receive a data stream from said media access controller for transmission onto said media; and

a receive circuit adapted to output a data stream received over said media to said media access controller.

35. (original) The controller according to claim 34, wherein said timing mechanism is adapted to average the timing of a plurality of individual synchronization signals transmitted by other nodes.

36. (original) The controller according to claim 35, wherein said averaging is achieved by time averaging the output of a matched filter adapted to said synchronization signal.

37. (currently amended) The controller according to claim 34, wherein said synchronization mechanism comprises processing means operative to:

listen to the media for a predetermined length of time while attempting to detect synchronization signals from other nodes;

if synchronization signals are detected, derive a timing signal from said synchronization signals;

align the clock in a particular node in accordance with said timing signal;

randomly transmitting, on a frame by frame basis, synchronization signals onto said media within a synchronization time slot;

maintain synchronization with other nodes by listening to said media for synchronization signals transmitted by other nodes when said synchronization signal is not transmitted during said specific points in time and detecting synchronization signals transmitted by other nodes; [[and]]

if synchronization signals are not detected, randomly transmit, on a frame by frame basis, synchronization ~~pulses~~ signals onto said media within said synchronization time slot and wait for other nodes to join said network[[.]] ; and

maintaining said media in an occupied state once synchronization is achieved by periodically transmitting a frame occupation signal within a media busy time slot indicating to all other nodes that the next frame is occupied.

38. (original) The controller according to claim 34, wherein said frame occupation signal generator is adapted to periodically transmit said frame occupation signal onto said media at the same point in time.

39. (previously amended) In a network including a plurality of nodes, a method of media access control for achieving coexistence of disparate nodes located in a plurality of groups, said method comprising the steps of:

allocating a synchronization time slot within frames associated with each group of disparate nodes, said synchronization time slot dedicated to the transmission of synchronization signals;

allocating a frame occupation time slot within said frames, said frame occupation time slot dedicated to the transmission of frame occupation signals;

each node inserting a synchronization signal on a predetermined basis during said synchronization time slot;

each node able to detect synchronization signals from at least one other group, generating converged a synchronization signal skewed toward a converged timing derived therefrom;

if the timing of said synchronization signals from other groups is sufficiently far apart, transmitting, by a middle node capable of hearing transmissions from other groups, multiple synchronization signals, each corresponding to a respective detected synchronization signal wherein synchronization signals are shifted in time so as to cause the timing of said plurality of groups to converge;

each node listening for the presence of frame occupation signals to determine whether said media is available; and

once a node detects said media is available, securing said media by transmitting said frame occupation signal during said frame occupation time slot.

40. (original) The method according to claim 39, wherein portions of said plurality of nodes run different protocols.

41. (original) The method according to claim 39, wherein portions of said plurality of nodes have different physical layers.

42. (original) The method according to claim 39, wherein said synchronization signal comprises a sequence of single tone pulses, each pulse having a different frequency.

43. (original) The method according to claim 39, wherein said synchronization signal comprises a wide band bi-phase sequence.

44. (original) The method according to claim 43, wherein the each node is adapted to transmit a different bi-phase sequence.

45. (original) The method according to claim 43, wherein said wide band bi-phase sequence is adapted to have good autocorrelation properties.

46. (previously amended) The method according to claim 39, wherein said step of transmitting comprises the step of selecting a number at random and transmitting said synchronization signal if the number selected is less than a predetermined threshold number chosen, wherein said predetermined threshold number corresponds to a desired duty cycle.

47. (original) The method according to claim 46, wherein said duty cycle is approximately 50%.